



THE GRAYING OF AMERICA –

DISPENSING TO THE OLDER POPULATION

Approved by the American Board of Opticianry

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The Graying of America

Dispensing to the Older Population

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Course Description:

This course will present information regarding the unique dispensing skills needed to dispense eyewear to the aging population. Generation Y has entered their presbyopic years. With the many generations of presbyopes, ways of dispensing have changed dramatically regarding options and information given to patients. Information on the personality traits of the different generations of the older population will be included. Identifying specific needs in including anatomical considerations will be discussed. This course will also present the importance of communicating. Information on ocular changes as patients age will also be included.

Learning Objectives/Learning Outcomes

Upon completion of this subsection, the student should be able to:

- List at least three ocular changes of the older patient
- Have a better understanding of presbyopia and accommodation, and opportunities for both spectacles and contact lenses and/or a combination of both
- List several of the concerns of the presbyopic patient
- Have a better understanding of some of the ocular health problems associated with the aging eye that affects both spectacle wearers and contact lens wearers
- Discuss the importance of communication with your patients to ensure that all fitting options are covered, include spectacles, contact lenses (and the types), as well as other options

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Dispensing to the Older Population

Introduction

This course will introduce some of the challenges that opticians and technicians may face in dispensing to the aging population. Since there are some very specific differences within all of the generations, knowing how to discuss information and present options to different generations will be presented. Some of the information that you will need to know is specific to the ocular system itself. Some of the information will relate to other health areas. Some of the information will relate to the psychology of the patient.

The Population is Aging

Information can be gathered from a number of sources for projections and averages. However, this author uses the CDC and the US Census Bureau for the most accurate information. Information from National Vital Statistics System in a report from the CDC in April, 2025 gives statistics gathered from 2022 showing that the overall life expectancy at birth was 77.5 years, increasing from 1.1 years from 76.4 in 2021 which had previously shown a decrease; the first time I had reported a decline in the average age since I have been reporting for many years. Projections from the US Census Bureau shows that the projection in the USA by the year 2035, for the first time in history, the number of seniors in the United States will outnumber children. As a matter of fact, people over 65 are expected to number over 77 million (down from 78.0 million previously). Children under 18 are expected to number 76.5 million (down from 76.7 million). These percentages of seniors in other countries have already begun to change. For example, Japan (the world's oldest population) has one in four people over 65 years old. Population is declining as the population becomes older. However, as the data has been updated, the life expectancy declined and then rose again on a yearly basis.

This author will continue to use the US Census Bureau and the CDC for information in reporting as they have always been considered the most accurate. With that being stated, according to the US Census Bureau, in 2020 (the most recent census), Americans enjoyed a life expectancy in U.S. of 77.28 years down from 83.6 years in 2010. The state having the highest life expectancy was Hawaii at 80.7 years and Mississippi had the lowest life expectancy of 71.9 years.

Personality Traits of the Generations

As you would recognize, people respond to things differently. So, what is the makeup of the older population? What are some of the traits of each presbyopic generation? Many of us dispensing now remember when the Baby Boomers were emerging presbyopes, but the emerging presbyopes are now past Generation X and the Millennial /Gen Y group.

What are some of the challenges of presbyopic needs of the older population versus the Baby Boomers and now Generation X? Opticians who find the best solutions to these challenges will find that in reality these challenges become opportunities. Does each age group have different needs or challenges? If they do, then the opportunities become greater as well.

The G.I. Generation: Born 1901-1924

These are the aging Americans who were born prior to 1925. The G.I. Generation is also known as the Greatest Generation. "G.I." stands for Government Issue, a term that is used to represent Army equipment issued to soldiers in the military. G.I. became the symbol for a person serving in the military. This generation is identified as very patriotic. They were a generation full of energy and commanded the respect of prior and succeeding generations. They are a generation that is represented by heroes. Fighting in WWII, they were able to endure and become conquering heroes of the War. John F. Kennedy described this generation as one who was able to "bear any burden, pay any price" to accomplish any goal they set.

They were stoic and were a more formal generation. They were the generation of the Roaring 20's and the Great Depression, and survived all. They had privilege but learned to do without and survive. They put the needs of the masses over the need of the few or personal gain. They have strong family values/traditions and had/have strong work ethics. They placed/place trust in their government and in their healthcare providers. They had/have very strong moral codes of ethics; the line between right and wrong was very clear. They believed/believe that a person's word was/is their bond. They were traditionalists and believed in hard work. There are still a number of older seniors with us today, and their personalities have not especially changed. They still trust until shown differently. They believe that the advice of healthcare providers should be believed and they will go along with those recommendations.

As of the writing of this course, there are very few patients that we serve from the GI generation as they would be 100 years old and older.

The Silent Generation: Born 1925 – 1945

Known as the (Generation without a Cause), the Silent Generation, nearly 50 million strong in the USA, are known as being very hard working, believing that one should work for what they get. Children growing up around the time of the Depression experienced a sense of trust in the government due to the efforts of Franklin Delano Roosevelt (1933-1945), who's New Deal programs quickly generated jobs and capital for the American people. Furthermore, this generation came of age during World War II, when patriotism ran high among American Citizens.

They were and still are very optimistic about the future and hold to strong moral obligations. They are the generation with a small reputation, of which none since the US Civil War has been so misunderstood and underestimated. They are identified as traditionalists, having a strong sense of duty, sacrifice and loyalty. They are known for loyalty to employers and had a strong desire for job security. As traditionalists, they usually stay with their employers until they retire. They married at an early age; however, they also started the divorce epidemic. This is the generation who fought in WWII or were children during that time. They remember the horrors of the war as well as the Great Depression, Pearl Harbor and Hiroshima. They are not known for rocking the boat, disrespecting authority or breaking rules. They were and are known for patriotism and trusting of the American government. Also known as the Cold War generation, they became notable for conformity. They were the generation where "children should be seen and not heard" among others. Because of having grown up during economic losses, they worked hard to overcome poverty and sought achievement, power and status, leading to high aspirations, goals and purposes.

The generation of this era has generally been found to be ambitious; often seeking achievement, power and status. A need for achievement, status and power increased with higher degrees of economic deprivation. Perhaps economic losses that affected one's family status left children with an ambitious desire to overcome such losses, leading to a generation of aspirations, goals, and purpose.

Baby Boomers: Born 1946 - 1964

By contrast and in response to traditionalists, Baby Boomers are a group of people born between 1946 and 1964, the post WWII babies who asserted their individuality. Baby Boomers initiated the Civil Rights Movement, attended Woodstock, and rallied against the Vietnam War. Boomers took control, and today, they remain in control. They run governments, are bosses, supervisors, managers, and CEOs of most companies, dominating the workforce. They are dedicated to a solid, strong work ethic. Boomers work long and hard and like to be seen doing it. It's no surprise that the term "workaholic," was coined for this generation. They are also the generation when many women chose to work outside the home. Their children became known as latchkey children. Perhaps because women asserted their individuality, divorce became more common than at any point in history. They encourage their children not to conform, as Boomers are the beginning of the hippie generation.

This group of aging Americans wants to be personally involved in their health/eye care. They want to be informed of all aspects of their care. They are used to researching their ailments, sometimes coming to their healthcare providers armed with a lot of information, and they want their questions answered correctly.

They have a strong set of ideals and traditions, and are very family oriented. They inherited some of the characteristics of their parents, but because of political changes they are fearful of the future, politically conservative and active but fairly socially liberal. There are over 77 million people in this generation in the USA.

Generation X: Born 1964 – 1981 (Some reports state 1964 – 1977)

It's quite fitting that the first generation whose parents could take pills not to have them would be categorized as rejecters. Every institution that has said "you can trust us," be it government, church, military, major corporations, and marriage, has fallen flat on its face in X's perception. It's hardly surprising that this generation tends to be skeptical toward authority and cautious in their commitments. They grew up very quickly amid rising divorce rates, known as latchkey kids; they are used to violence and low expectations. As a result, this generation has willingly shouldered the responsibility for their day-to-day well-being. They live in the present, like to experiment, and are looking for immediate results. They are selfish, cynical, and depend a lot on their parents. They question authority and feel as if they carry the burden of the previous generations. Gen Xers assume free agency over company loyalty. They are the generation of instant gratification: they want everything and they want it now. They have been the generation that has always had microwave ovens to "instantly cook" anything or they have had quick meals at fast food restaurants. They question authority because their parents, the Boomers, taught them to do so. They place the blame for failures in today's society on previous generations. While previous generations were sometimes lifetime loyalists to the companies they worked for, the

people of this generation are considered “free agents” over company loyalty. They have always had computers. They don’t know a world without AIDS. They were born when abortion was legalized. Roe v. Wade (1981). Dot com jobs emerged, leaving many without job security, or job loyalty. The Cold War ended during these years. Generation Xers have strong individualism. They were born during the time that the space shuttle Challenger exploded. Some people from this generation include Princess Diana, Michael Dell, Michael Jordan, Quentin Tarantino, Bill Bales and Adrian Scott (founders of Napster). Generation X are emerging presbyopes.

Millenials (Generation Y): Born 1977 – 1994 (Some reports state 1981 – 1996)

Many of the traits of Generation X carried over to this generation. This generation is fiercely independent. They have grown up during economic prosperity and relative stability. They tend to be concerned with ethics and social responsibility. They are used to researching their information, some of which may be good and some of which may be bad. Some are not “into” teamwork because they like to work independently. This generation is used to digital communication and are best reached by those methods. While they have phones, they use them more for texting and e-mail than calls. They are also not as likely to stay in a job where they are not being challenged. They tend to be more concerned with advancement than financial reward. As of 2019, the Millenials have become the largest generation in the United States. They are getting married later and having children late

The Effects of Aging

We will discuss the ocular changes in a moment. The entire body is affected; everything slows down. The perception that each individual has of their own aging process will vary. That’s why it’s so important to understand how people feel about presbyopia and aging. As seniors go to their health care providers, they want to be involved in managing their care and their lives.

Now let’s discuss some ocular changes of the aging eye. As we age our visual system undergoes major changes. Some of these changes include:

- Presbyopia
 - Decline of accommodation
- In addition to loss of other muscle tone, the lids lose their tone as well. We find many lids droop and other lid concerns with fitting contact lenses as a patient ages
- The amount of light entering the eye depends on the area of the pupillary opening, which tends to shrink with age and is referred to as senile miosis
- Loss or reduction of visual acuity, which means that somewhere around the age of 50, visual acuity diminishes year by year. Acuity is indexed by the ability to resolve fine detail on standard clinical examinations
- There is also lowered contrast sensitivity. Contrast sensitivity declines steadily with age, beginning as early as 30 years
- There is an increase in sensitivity to light. Because of increased opacification of the crystalline lens and changes in the retina, the older eye has increased light sensitivity even though there is less light entering the eye
- Just as everything else seems to slow down with age, including cognitive ability, reasoning and memory, the brain takes longer to process the images for vision. Many

older patients are also on more medications, which can affect tear production and vision as well

- In addition to causing reduced tear quantity, we also find reduced tear quality in older patients due to a number of factors including medications, longer exposure to environmental factors, and additional traumas, among others

Other considerations for dispensing eyewear to our older patients include:

- As people age, the fatty tissue changes within the body. The fatty tissue within the skin along the nose thins out, offering less cushioning for glasses. So, we need to offer more lightweight lenses and frames as well as ensure that the nose pads are correctly fit. Consider the material, as people may have more sensitivity to materials such as silicon.
- Smaller frames are generally more lightweight for older patients and ensuring that the temple is the right style, size and fit is important.
- Since glare is often a problem, anti-reflective lenses (coatings) are almost an essential, particularly for night driving. Also, since seniors need more light, avoiding tints (except for sunwear) is important, but doubles the reason for AR lenses.
- Since seniors are generally more light-sensitive, offering photochromic lenses will offer the comfort they need. In addition, prescription sunwear is important for outdoor activities, including driving.
- Seniors today are more active both indoors and outdoors, so don't forget the special needs glasses for special activities such as sports protection glasses or computer glasses.
- And finally, never forget to recommend at least one pair of back-up glasses. Seniors need their eyewear for their independence and safety.

Presbyopia

Let's define presbyopia. If we break the word presbyopia down in Greek, Presby means old and opia means vision or sight. Therefore, presbyopia is old vision or old sight. We have to determine what causes it; living long enough is a start. However, there are a number of contributing factors. As we age, the crystalline lens continues to add layers, somewhat like an onion. The cell layers don't shed, then pack into a capsule that becomes less elastic as we age, making the crystalline lens harder. Combine that with the ciliary muscle becoming weaker, the zonules which control the crystalline lens losing elasticity (not allowing them to fully slacken), and the accommodative system is not as efficient as when we were young. Additional factors can also cause presbyopia to accelerate, including some systemic diseases such as diabetes or multiple sclerosis. Ocular trauma and medications, which include over the counter as well as prescribed, can cause presbyopia to accelerate. Anything that causes chronic dehydration, such as poor sanitary conditions found in third world countries, as well as environmental conditions including exposure to UV radiation and higher temperatures, can cause a premature hardening of the crystalline lens. There is also a change of the lens shape. We identify the crystalline lens as having lost all ability to accommodate by approximately age 61.

Other factors that influence the need for correcting presbyopia include a person's occupation and reading habits. Obviously, the more someone requires near vision, the more they will seek correction. Interestingly enough, the patient's height may be a factor as well. If a person is taller, with longer arms, and is accustomed to holding their reading material out further, they may

require correction later than someone who may be shorter with shorter arms who is used to holding reading material closer.

Can presbyopia be stopped? Is there a cure? For now, let's just say that presbyopia is manageable. What does the future hold? Only time will tell. For now, let's manage it.

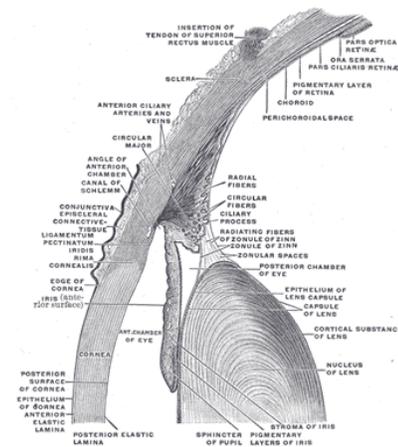
Age Related Changes of the Eye

Decline of Accommodation

Accommodative Anatomy

Included in accommodation are the crystalline lens, the ciliary body, and the Zonules of Zinn, which are suspensory ligaments. The lens is suspended from the ciliary process by the zonules.

Zonules are thin, delicate filaments maintaining the lens suspended in position. The zonules stretch from the ciliary epithelium and peripheral retina to the lens capsule and form a thin pericapsular membrane at the lens equator. The ciliary muscle is primarily a sphincter or ring muscle which also contains fibers extending longitudinally and obliquely.



Accommodation occurs when the brain recognizes a blurred image. The Ciliary muscle contracts and moves toward the crystalline lens, the zonule fibers relax and the crystalline lens bulges or becomes more convex. The lens becomes thinner following relaxation of the ciliary muscle. Axial thickness changes with the state of accommodation. Between 30 to 35 years of age, the nucleus of the crystalline lens starts turning yellow to yellow brown, and becomes larger. The amplitude of accommodation is about 15 diopters at birth and diminishes to virtually zero around the age of 61. The cells of the crystalline lens continue to grow, while the capsule remains the same. In addition, the zonule fibers lose some elasticity and the ciliary muscle loses some tone. This hardening of the lens combined with the changes in the zonule fibers and the ciliary muscle produces presbyopia.

Age-Related Vision Problems

While aging isn't a bad thing, at times we may think it is. As we age, there are various conditions that occur in our bodies, and things that change. For now, let's discuss some of the issues that deal with age-related vision problems. Some of the subjects that we will be discussing with regard to age-related vision problems will be cataracts, glaucoma, diabetic retinopathy, macular degeneration and cystoid macular edema among others. There are some 500,000 legally blind persons in the U.S.A. More than half of these are seniors.

In order for clear vision to take place, the various structures of the eye must be healthy. During the normal process of aging, we become more susceptible to age-related vision changes. The cornea and crystalline lens must remain clear, enabling light rays to focus on the retina. The retina must be healthy, with no damage to the rods and the cones. The aqueous must be adequate

to nourish the back side of the cornea and the front surface of the crystalline lens, and remove waste products. The aqueous must also drain adequately to ensure no build-up of fluid, which can cause glaucoma. Just through the normal aging process, the vitreous will develop floaters, and numerous floaters can affect vision. The change in the viscosity of the vitreous can also have an impact on vision. Vitreous detachments may appear benign, but must be faithfully monitored, as they may pull enough on the retina causing a retinal detachment.

As a person ages, the cornea may not be as clear as it was at an earlier age. Fluid building up within the corneal tissues takes longer to go away, primarily because of the endothelial layer being less efficient in pulling the fluid out. This can be most noticeable in the mornings. The pupil becomes smaller (senile miosis) and reacts slower to light. More cell layers build in the crystalline lens, creating a hardening (presbyopia) and the lens substance also starts yellowing (sclerosing). It takes longer for the brain to interpret the images that are transmitted.

Vision and the Senior Adult

Fortunately, many seniors have excellent vision. However, they have reached an age when many age-related vision disorders and diseases tend to occur.

Age related vision disorders can include:

- *Cataracts:* causing central/overall vision loss. (Clouding of the lens)
- *Glaucoma:* resulting in tunnel vision. Fluid in the eye does not drain away fast enough and pressure builds up.
- *Retinitis Pigmentosa:* can also result in tunnel vision. Retinal cells that normally receive light break down.
- *Age-Related Macular Degeneration:* means central vision loss. The macula fails to respond to light.

Other age-related vision concerns include:

- *Dry eye:* occurs more commonly as a person ages. Interruption of any of the three layers of the tear film can cause dry eye. Because a patient is on more medications that can cause an interruption to one or more layers of the tear film, they may have dry eye more frequently. Symptoms can include itching, burning, eye fatigue, and/or reduced visual clarity. Dry eye needs to be evaluated to determine the cause so that appropriate treatment may be administered. Treatment may include ocular vitamins, fish oil added to the diet, lens lubricants, eye drops that stimulate better tear production and punctal plugs among others. In addition, evaluating the environmental factors that may be contributing factors can help, such as suggesting a humidifier being used
- *Excessive tearing:* reflex tearing is generally caused by irritation of some type. The practitioner must identify the cause/underlying cause of excessive tearing, as this is a symptom rather than a true condition. Treatment is based on the cause
- *Blepharitis:* an inflammation of the eyelids. While blepharitis can occur in all ages, due the compromised tear film it is more common in seniors. Treatment can include lid scrubs/lid hygiene, eye lubricants and antibiotic drops. In addition, the practitioner must identify the cause/underlying cause of the inflammation

- *Eyelid disorders:* include anything from eyelid inflammation, ptosis (drooping eyelid), entropion (inverted eyelid), ectropion (everted eyelid), styes, chalazion, exophthalmos, and loss of cilia (eyelashes)
- *Floaters:* tiny spots or specks that float across the field of vision. More often, they are noticed during daylight/light hours. Most floaters are a normal occurrence but can indicate a more serious eye problem, such as a retinal detachment, particularly if they are accompanied by flashes of light and a veiling effect within the vision. If a patient mentions these symptoms, it's incumbent upon an optician/technician to refer them to a doctor for evaluation
- *Vitreous detachment:* as the eye ages, the vitreous becomes less viscous and shrinks. This can cause the vitreous to loosen and ultimately may cause a vitreous detachment. Symptoms can include increased flashes of light and floaters. While this is considered non-sight threatening, it needs to be evaluated by a doctor and followed. In some cases, the pulling of the vitreous can be a precursor to a retinal hole or detachment
- *Retinal holes and tears:* small breaks in the retina. The conditions may occur as a result of ocular trauma, vitreous thinning, and axial myopia. Symptoms may include cloudy, blurry, wavy vision, a dark shadow or curtain in patients' peripheral vision. Symptoms may also include flashes of light and floaters. Must be evaluated and followed by a doctor. Treatment through the use of laser may be used to prevent retinal detachment.
- *Retinal detachment:* a sight threatening condition whereby the retina detaches from the choroid, depriving the retinal cells of life-giving blood. Symptoms include flashes of light and floaters as well as a veiling effect to the vision. Some people describe the effect as a cloud or curtain coming down over their vision. Immediate referral to an ophthalmologist is critical, and immediate treatment/reattachment must be done to preserve vision. Treatments may include laser and/or scleral buckle.
- *Cystoid Macular Edema:* Cystoid Macular Edema (CME) usually occurs due to ocular inflammation. The inflammation within the eye produces chemicals that cause the retinal vessels to leak. This results in fluid accumulation in the central retina, and the formation of small retinal cysts. CME due to inflammation can occur in uveitis (inflammation of the inner lining of the eye) or following eye surgery. CME can also be caused by mechanical irritation of the retina as occurs in an epiretinal membrane. The effects of the hemorrhaging blood vessels can be devastating. The leakage may separate the retina from the underlying choroid
- *Diabetic retinopathy (overall vision loss):* bleeding, blood clots and scars build in the retina

Because diabetes can have such a devastating effect on vision, here is a larger description of the main visual concerns:

Individuals with diabetes are more likely to develop cataracts at a younger age and are twice as likely to develop glaucoma as are non-diabetics. However, the primary vision problem caused by

diabetes is diabetic retinopathy, the leading cause of new cases of blindness and low vision in adults aged 20-65.

Retinopathy is a general term that describes damage to the retina. The retina is the thin, light-sensitive tissue that lines the inside surface of the eye. Nerve cells in the retina convert incoming light into electrical impulses. These electrical impulses are carried by the optic nerve to the brain, which interprets them as visual images. Diabetic retinopathy occurs when there is damage to the small blood vessels that nourish tissue and nerve cells in the retina.

Proliferative is a general term that means to grow or increase at a rapid rate by producing new tissue or cells. When the term proliferative is used in relation to diabetic retinopathy, it describes the growth, or proliferation, of abnormal new blood vessels in the retina. Non-proliferative indicates that this process is not yet occurring. Proliferative diabetic retinopathy affects approximately 1 in 20 individuals with the disease.

According to the National Eye Institute, diabetic retinopathy has four stages:

- *Mild non-proliferative retinopathy*: At this early stage, small areas of balloon-like swelling occur in the retina's tiny blood vessels
- *Moderate non-proliferative retinopathy*: As the disease progresses, some blood vessels that nourish the retina become blocked
- *Severe non-proliferative retinopathy*: Many more blood vessels become blocked, which disrupts the blood supply that nourishes the retina. The damaged retina then signals the body to produce new blood vessels
- *Proliferative retinopathy*: At this advanced stage, signals sent by the retina trigger the development of new blood vessels that grow (or proliferate) in the retina and the vitreous, which is a transparent gel that fills the interior of the eye. Because these new blood vessels are abnormal, they can rupture and bleed, causing hemorrhages in the retina or vitreous. Scar tissue can develop and can tug at the retina, causing further damage or even retinal detachment

In addition, fluid can leak into the macula, the small sensitive area in the center of the retina that provides detailed vision. This fluid can cause *macular edema* (or swelling), which can occur at any stage of diabetic retinopathy, although it is more likely to occur as the disease progresses.

Symptoms of diabetic retinopathy can include:

- Blurred or double vision
- Flashing lights, which can indicate a retinal detachment
- A veil, cloud, or streaks of red in the field of vision, or dark or floating spots in one or both eyes, which can indicate bleeding
- Blind or blank spots in the field of vision

Ocular and functional effects of diabetic retinopathy can include any or all of the following:

- Fluctuating vision in response to changing blood glucose levels; vision can change from day-to-day, or from morning to evening
- Blurred central vision from macular edema can interfere with reading

- Decreased visual acuity can interfere with seeing the markings on an insulin syringe or the display on a standard blood glucose monitor
- Irregular patches of vision loss or blind spots can make it difficult to judge the size of food portions on a plate
- Decreased depth perception, in combination with decreased visual acuity, can make it difficult to see curbs and steps, or walk to the diabetes clinic

Other causes of vision loss include stroke, trauma, corneal dystrophies and degenerative diseases of the brain.

Sometimes these conditions can lead to legal blindness. Legal blindness is identified as loss of vision to a best corrected visual acuity of 20/200 or less in the better eye, utilizing conventional or contact lenses or loss of visual field to a diameter of 20 degrees or less in the better eye, or total homonymous hemianopia (described below). The visual field is the full extent of the area visible to an eye that is fixating straight ahead, measured in degrees from fixation. A person with what is often referred to as normal vision has nearly 180 degrees of field.

- Visual field loss (Optic nerve cut or brain damage). Visual field loss can be caused due to glaucoma, RP, trauma, stroke, brain disorders/neurological disorders among other causes. Visual field loss can be within one eye (monocular) or within both eyes (binocular). Visual field testing is necessary to identify the extent of the visual field loss. If only one eye is affected, the problem could be trauma to the eye or some other disorder. If the visual defect is similar in both eyes, it could be something different entirely. A loss of vision in the same area of each eye is referred to as a hemianopsia. For example, damage to the right side of the posterior portion of the brain can cause a loss of the left field of view in both eyes. Likewise, damage to the left posterior brain can cause a loss of the right field of vision in both eyes. Loss of half of the field of vision on the same side in both eyes is called homonymous hemianopsia, also referred to as homonymous. It frequently occurs in stroke, tumor and traumatic brain injuries, because of the manner in which the nasal nerve fibers from each eye cross as they pass to the back of the brain. The visual images that we see to the right side travel from both eyes to the left side of the brain, while the visual images we see to the left side in both eye travel to the right side of the brain. A quadrant (quarter) loss of vision in the same quadrant in each eye is called a homonymous quadranopsia. Since there are so many particulars, we will not cover ALL causes of visual field loss.
 - Various types of visual field testing are required to test for all different field losses.
 - A basic screening is a confrontation visual field test. It is typically used as a screening visual field test. One eye is covered, while the other eye fixates on a target object, such as the technician's/doctor's open eye, while the technician/doctor stands or sits directly in front of the patient. The patient is then asked to describe what they see on the far edges or periphery of the tester's field of view.
 - Automated Perimetry is becoming the standard of care in many eyecare professional offices. Various types of automated perimetry tests measure the patient's responses to the presence of objects in different areas of their field of view. While holding their head still, usually with a chin rest inside a large bowl-like instrument, the patient is requested to stare at a source of light straight ahead. Random lights of different intensities are flashed in their field of vision. They then press a button or use other means to

indicate their response when they perceive the computer-generated light suddenly appearing in their field of view. The test can be printed out and/or saved. The doctor will evaluate the field and determine if further testing is necessary.

- Frequency Doubling Perimetry. Frequency doubling is based on an optical illusion produced with vertical bars of contrasting colors (usually black and white) appearing on a screen. These bars appear to double in number when they alternately flicker at higher frequencies, a phenomenon thought to be due to the unique response of specific light-sensitive cells (photoreceptors) in the retina. Inability to see vertical bars at certain frequencies could indicate optic nerve or other types of eye damage with accompanying loss of vision in certain areas of the visual field.
- Electroretinography. This test measures electrical activity generated by the photoreceptor cells in the retina when the eye is stimulated by a special strobe light or a reversing checkerboard pattern of light. The measurement is captured by an electrode placed on the front surface of the cornea and a graphic record called an electroretinogram (ERG) is produced. Electroretinography is useful in diagnosing several hereditary and acquired disorders of the retina, including retinitis pigmentosa, a detached retina or functional changes in the retina caused by arteriosclerosis (hardening of the arteries) or diabetes.
- Any potential visual field defect should be identified by a doctor, and followed closely. Oftentimes, it is an eye doctor who identifies a very serious/possibly life-threatening condition during a “routine” eye examination. A brain tumor could be one.

Dispensing Considerations

While it may seem that seniors are “over the hill”, the opposite is more commonly true. Seniors lead extremely active lifestyles and it is our responsibility as professional dispensers to completely analyze their visual, lifestyle and emotional needs for eyewear and eyecare. It’s hard to consider the youngest of the presbyopes as being “Senior”, however, the process continues. Knowing that they have experienced more environmental factors, we are aware that they may have more sensitivity as well. Simply understanding some of their conditions and concerns will help during the dispensing process. Ask questions to find out what their needs are. Determine any concerns and address them with your product knowledge and your knowledge of their conditions without appearing to be a doctor. Know when to refer to a doctor. However, you are the person who can help put them at ease and let them know you are there for them.

Other considerations for dispensing eyewear to our older patients include:

- As people age, the fatty tissue within the skin along the nose thins out, offering less cushioning for glasses. So, we need to offer more lightweight lenses and frames as well as ensure that the nose pads are correctly fit. Consider the material, as people may have more sensitivity to materials such as silicon.
 - There could be more fatty deposits in the eyelids and the lids may sag. Muscle tone of the eyelids may not be a good. More need for ptosis or surgery.
 - We often see more entropion and ectropion as well. Their eyes may be dry or “sore” as a result.

- Smaller frames are generally more lightweight for older patients and ensuring that the temple is the right style, size and fit is important.
- Since glare is often a problem, anti-reflective lenses (coatings) are almost an essential, particularly for night driving. Also, since seniors need more light, avoiding tints (except for sunwear) is important, but doubles the reason for AR lenses.
- Since seniors are generally more light-sensitive, offering photochromic lenses will offer the comfort they need. In addition, prescription sunwear is important for outdoor activities, including driving.
- Seniors today are more active both indoors and outdoors, so don't forget the special needs glasses for special activities such as sports protection glasses or computer glasses.
- And finally, never forget to recommend at least one pair of back-up glasses. Seniors need their eyewear for their independence and safety.

Being able to analyze their face shape and color analysis is important to helping them to look the best in their new eyewear.

Oftentimes, seniors (and not too old seniors) don't hear as well. Don't shout at them. Simply speak clearly and use the same voice rhythm that they use. Young people tend to speak at a more rapid pace than do seniors. Slow down. Pronounce your words correctly. Don't use slang terms. Look them in the eye. Don't over promise. Be honest. Be respectful. Don't patronize, but do respect them. They will respect you as well.

Conclusion

As you can see, there's a lot to know about dispensing to seniors. You need to understand the mechanics of the aging eye. In addition, you need to be able to communicate well with your senior patients, and oftentimes with their spouse or child as well. You also need to select eyewear for *function, fit and fashion*.